

West Pinal PM10 Non-Attainment Area: Emission Sources

Sun Corridor MPO

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Director

Pinal County Air Quality Control

July 14, 2020

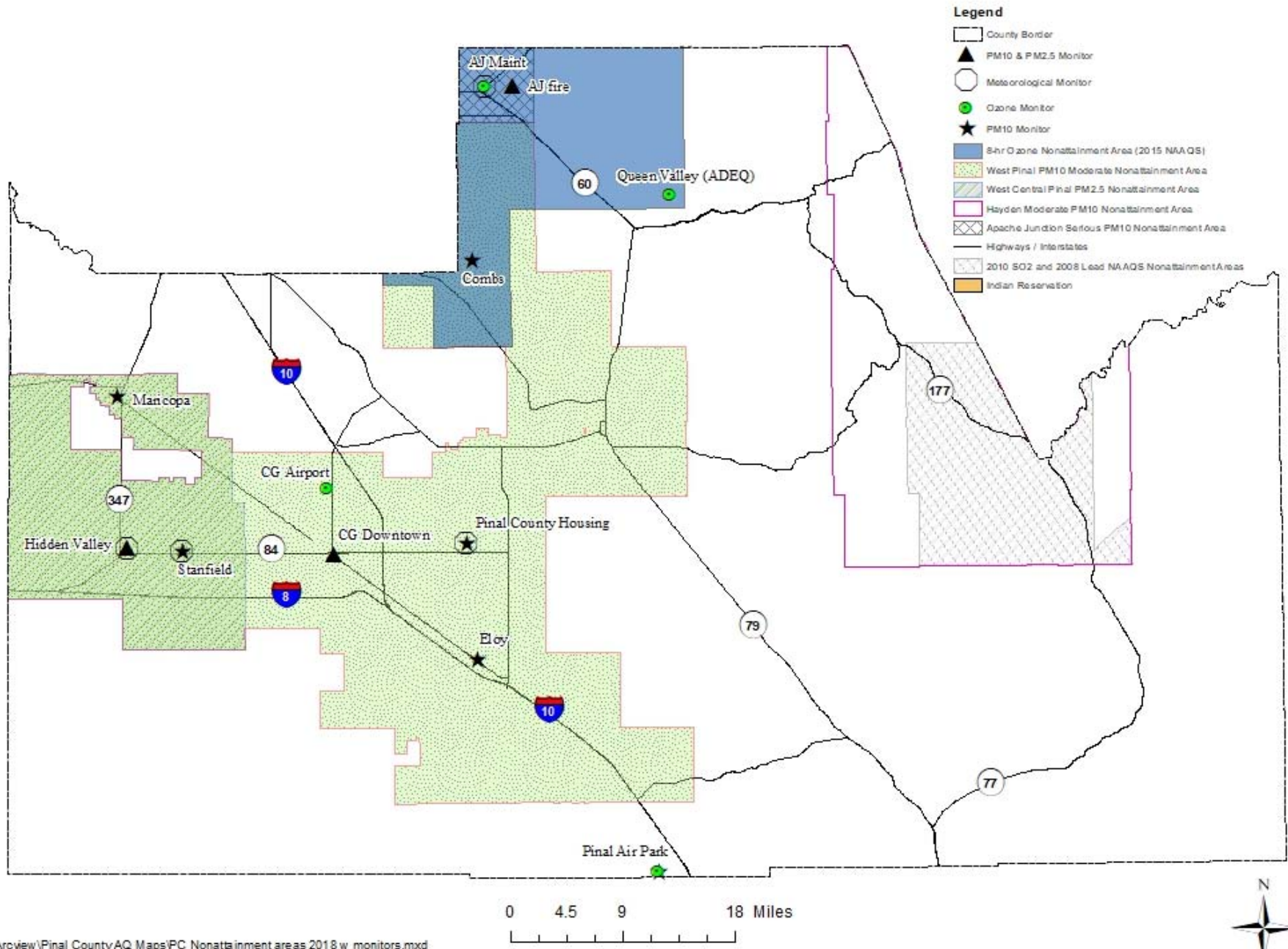
Pinal PM10 Non-Attainment

- PM-10 nonattainment
 - NAA Designation - July, 2012
 - Serious Area Redesignation July 24, 2020
 - SIP development ongoing
 - Maricopa Association of Governments is the lead agency in SIP development (Governor's designation)
 - Components include:
 - Inventory
 - Modeling (Source Apportionment)
 - BACM Analysis
 - Control Evaluation (what is needed to show attainment)
 - Control measures (BACM)

PM10 Exceedance Summary

| Site | # Exceedance Days Per Site 2017-2019 | | |
|-----------|---|------|--------------------------------------|
| | Stagnation | Wind | Combo (wind/stagnation/transport) |
| HV | 53 | 17 | 9 |
| Stanfield | 2 | 25 | 2 |
| PCH | 1 | 16 | 2 |
| Eloy | 1 | 8 | 2 |
| CG | 0 | 10 | 1 |
| MCPA | 0 | 9 | 0 |
| Combs | 0 | 4 | 0 |
| AJ | 0 | 4 | 0 |

Pinal County Air Quality Control District Monitoring Network and Nonattainment Areas



Emissions Inventory

2008 base year

- Design Days for 2 scenarios:
 - Stagnation / Low Wind – Activity driven emissions
 - High Wind (over 12 mph) – Surface condition driven emissions
- Separate modeling domains were defined and emissions inventories were developed for each
- Developed a Nonattainment Area-wide Inventory

Summary of 2008 Annual High Wind Emissions in West Pinal Nonattainment Area

Preliminary Numbers

| Land Use Category | Emissions (Tons/Year) | Percentage |
|---|-----------------------|------------|
| Developed Urban Lands | 201 | 0.27% |
| Developed Rural Lands (low density residential) | 1,960 | 2.59% |
| Unpaved Roads | 4,689 | 6.20% |
| Cleared Areas | 399 | 0.53% |
| Residential Construction | 1,335 | 1.76% |
| CAFOs and Dairies | 723 | 0.96% |
| Desert Shrubland | 38,277 | 50.58% |
| Agricultural Croplands | 22,397 | 29.59% |
| Commercial Construction | 624 | 0.82% |
| Other | 4,244 | 5.61% |
| Site Development | 835 | 1.10% |
| Total Emissions | 75,682 | 100% |

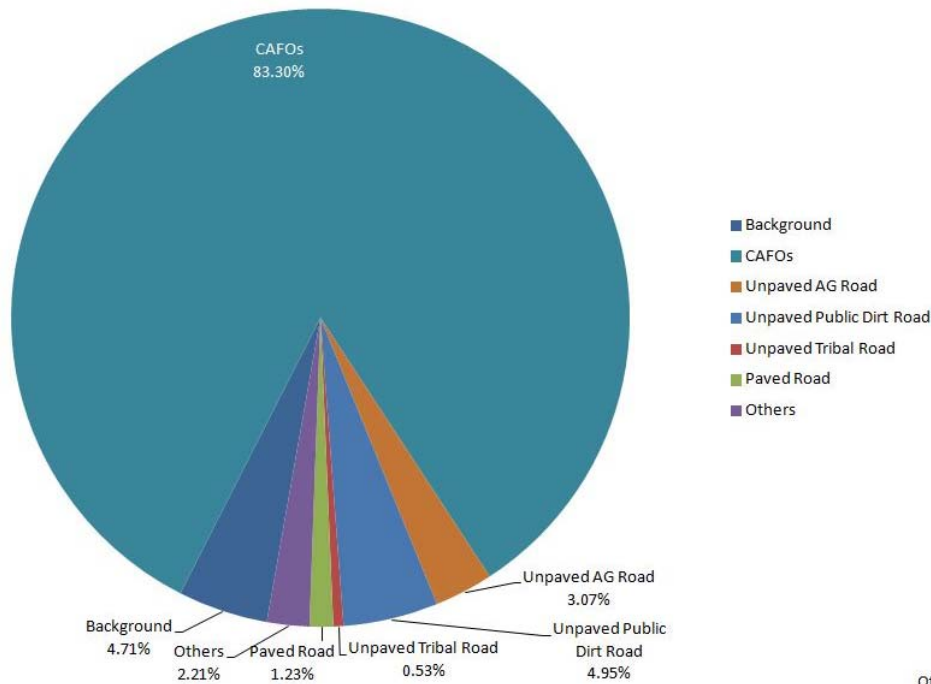
Summary of 2008 Annual PM10 Emissions in the West Pinal County

Nonattainment Area

Preliminary Numbers

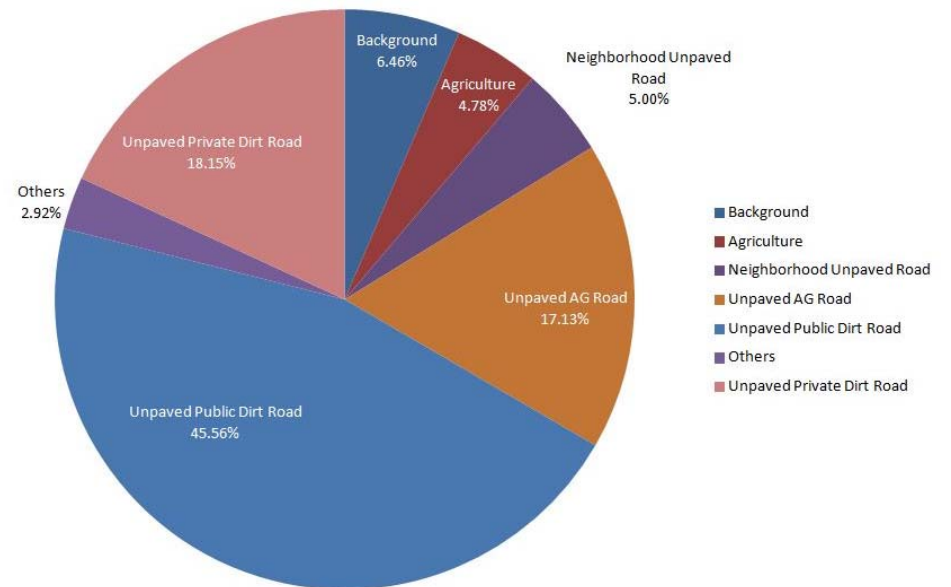
| Source Category | | PM ₁₀ Emissions | |
|-------------------------------|------------|----------------------------|------------|
| | | (Tons/Year) | % of Total |
| Agriculture | Harvesting | 313 | 0.23% |
| | Tilling | 2,540 | 1.88% |
| CAFOs | | 2,614 | 1.94% |
| Paved Road | | 905 | 0.67% |
| Unpaved Road | | 46,297 | 34.33% |
| Fuel Combustion | | 28 | 0.02% |
| Fires | | 20 | 0.01% |
| Open Burning | | 14 | 0.01% |
| Nonroad | | 121 | 0.09% |
| Railroad | | 86 | 0.06% |
| Construction | | 5,553 | 4.12% |
| Dairy | | 184 | 0.14% |
| Permitted Sources | | 516 | 0.38% |
| Sub-Total: Low Wind Emissions | | 59,192 | 43.89% |
| Windblown Emissions | | 75,682 | 56.11% |
| Total Emissions | | 134,873 | 100% |

Stagnation Day Modeled Contributions

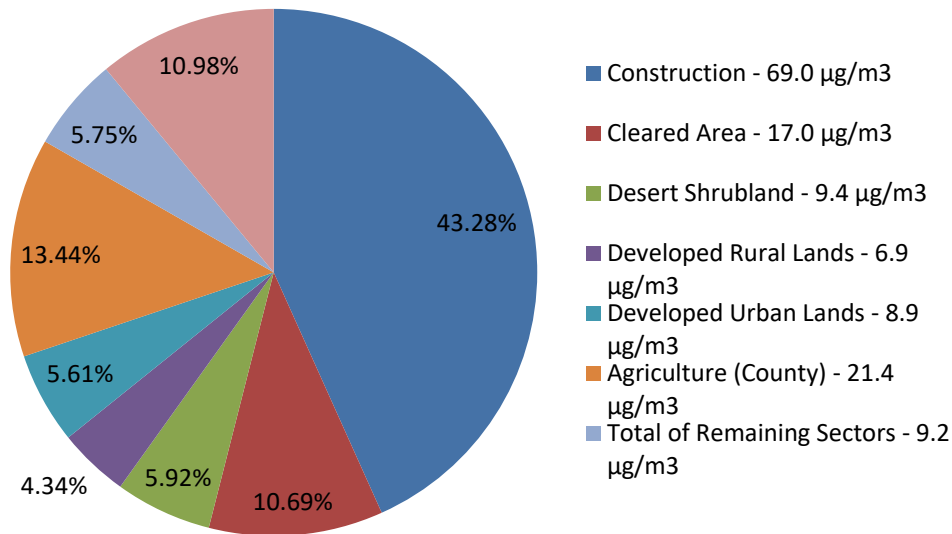


Cowtown 10/29/2008

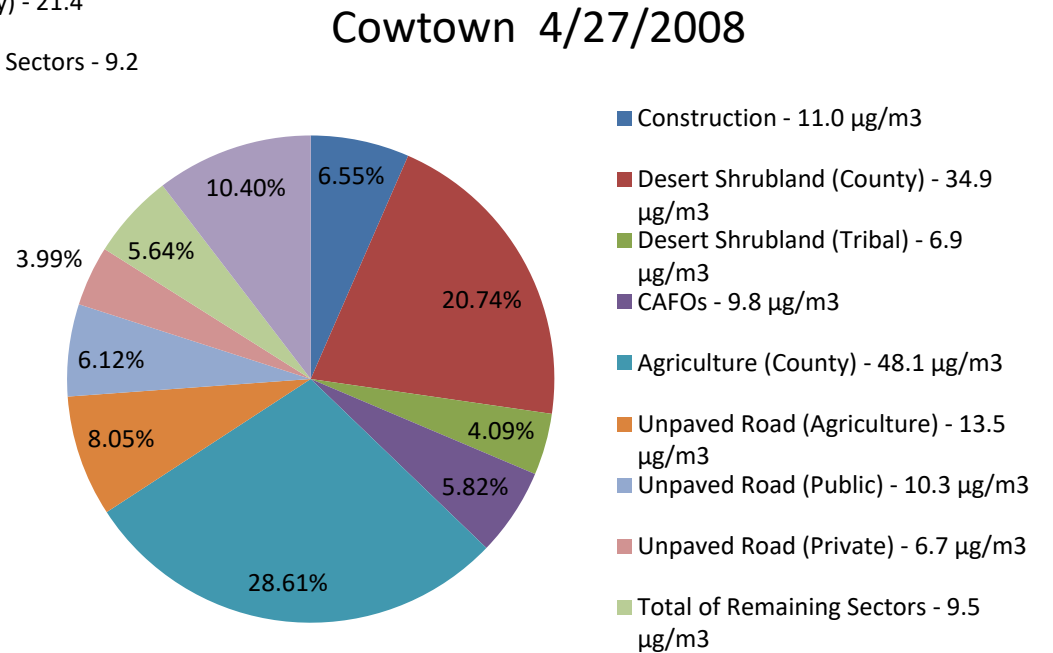
Pinal County Housing 10/29/2008



High Wind Day Modeled Contributions

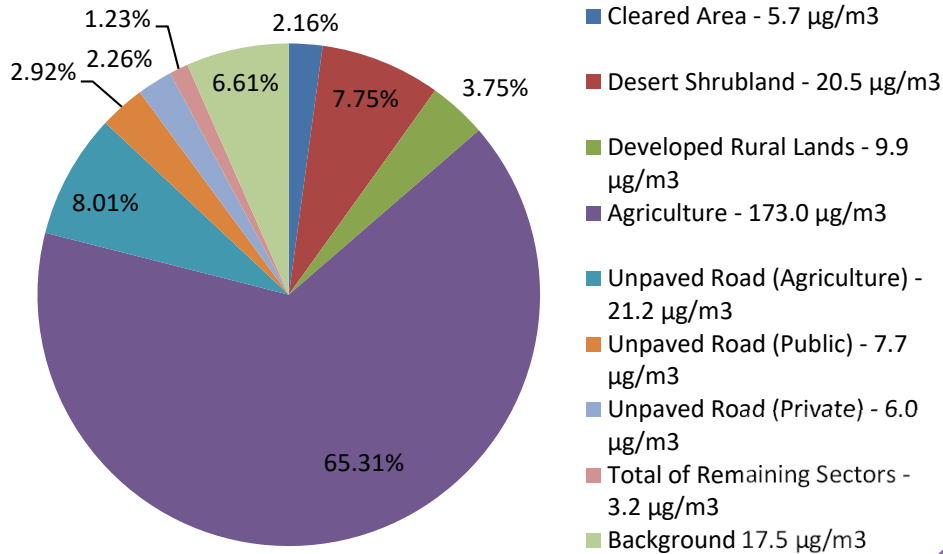


Maricopa 10/27/2008

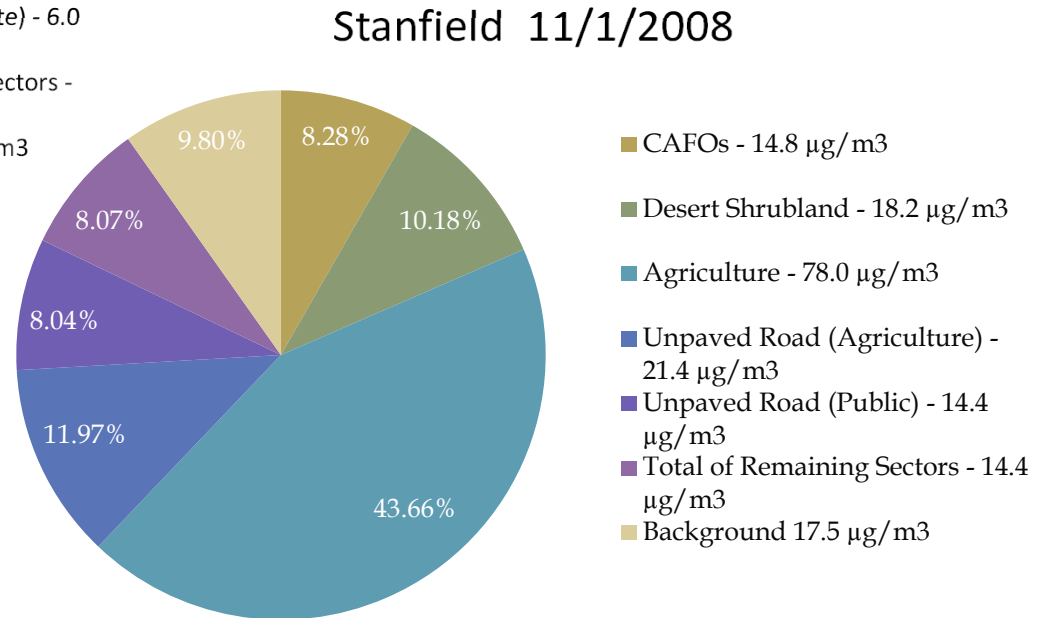


Cowtown 4/27/2008

High Wind Day Modeled Contributions



Pinal Co Housing 11/1/2008



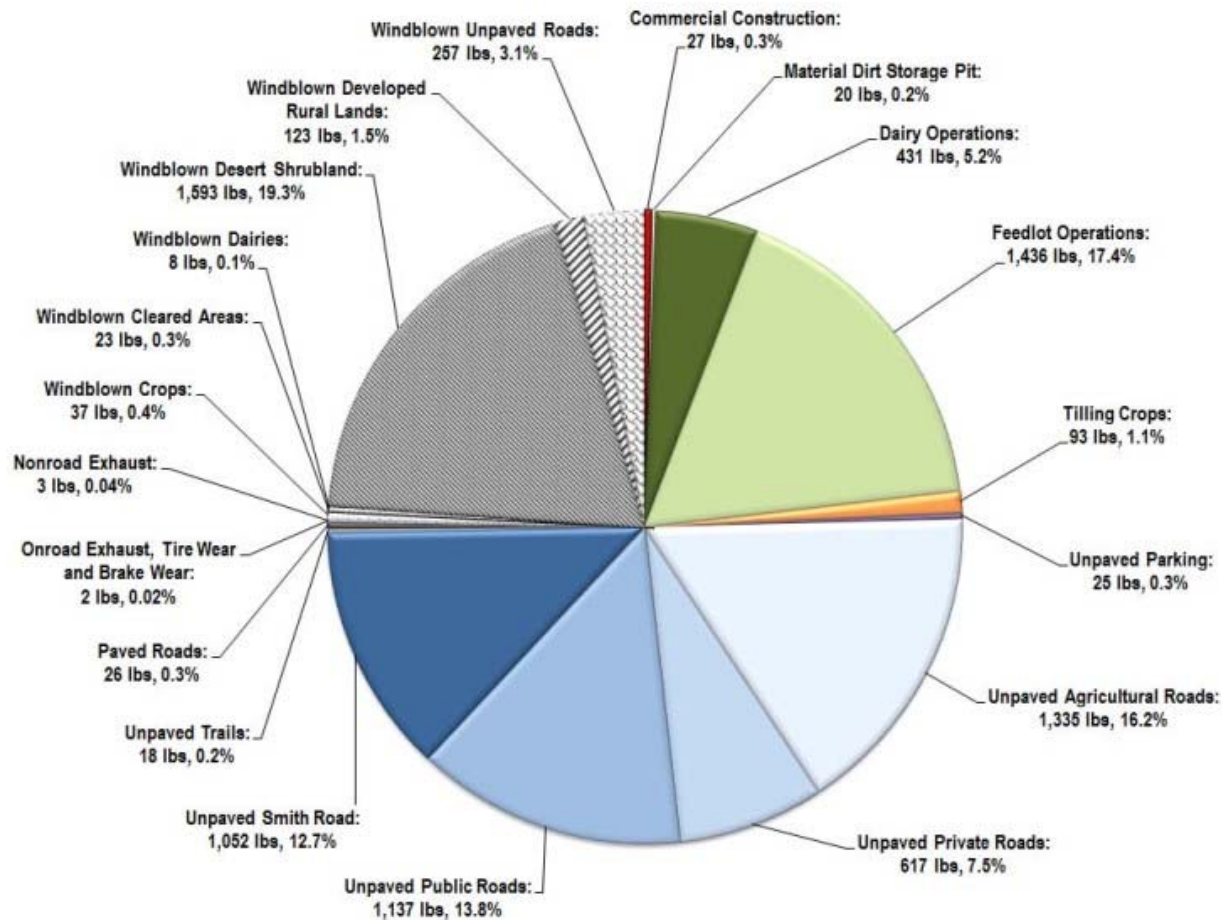
- CAFOs - 14.8 $\mu\text{g}/\text{m}^3$
- Desert Shrubland - 18.2 $\mu\text{g}/\text{m}^3$
- Agriculture - 78.0 $\mu\text{g}/\text{m}^3$
- Unpaved Road (Agriculture) - 21.4 $\mu\text{g}/\text{m}^3$
- Unpaved Road (Public) - 14.4 $\mu\text{g}/\text{m}^3$
- Total of Remaining Sectors - 14.4 $\mu\text{g}/\text{m}^3$
- Background 17.5 $\mu\text{g}/\text{m}^3$

Cowtown Monitor Relocation

- Data collection and replacement site began on January 1, 2016 at the Hidden Valley site..
- Preliminary Emission Inventory developed 2017 for Hidden Valley (Does not include Impact Analysis - Modeling)

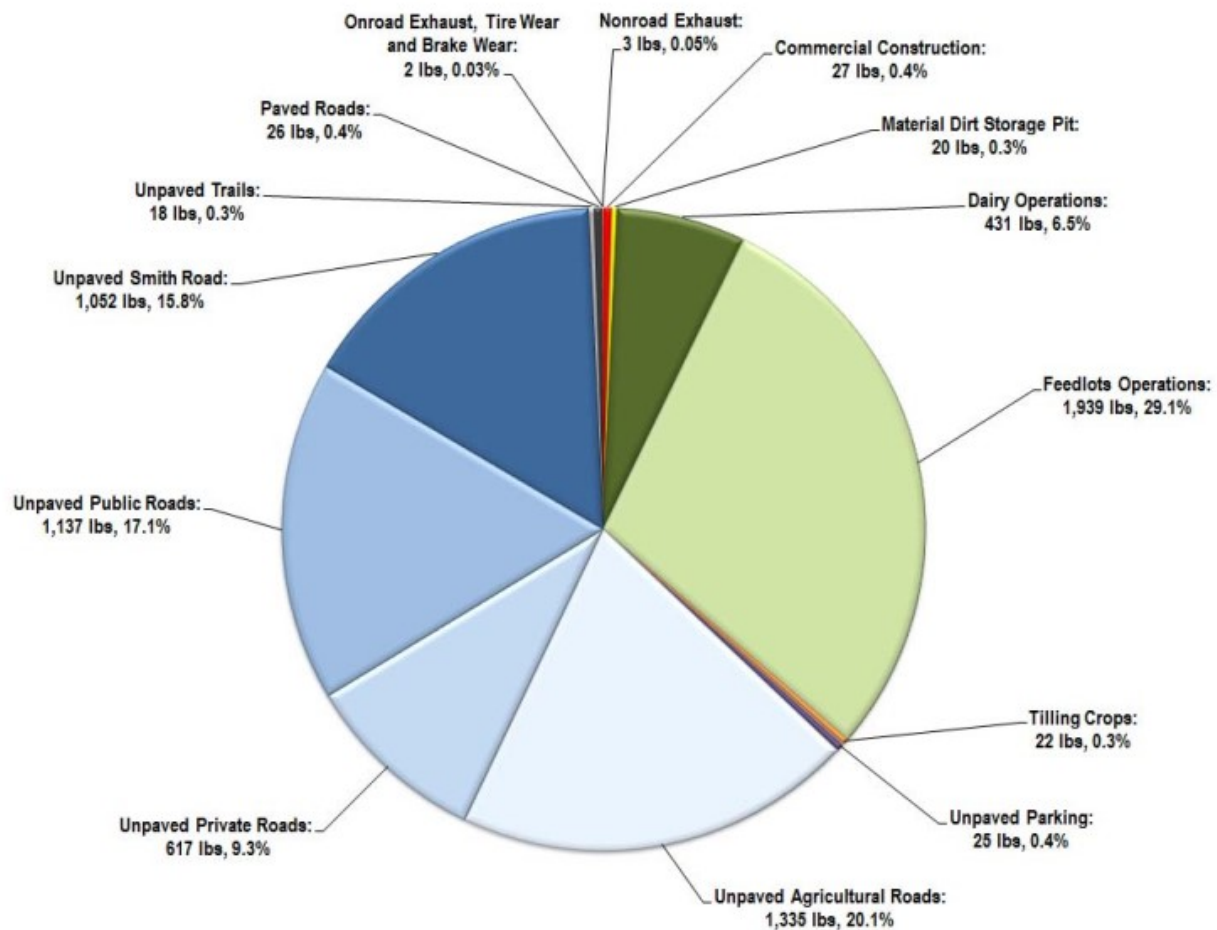
Hidden Valley Emission Inventory

Figure ES-3
Hidden Valley Monitor Area PM-10 Emissions on April 7, 2016 (high wind day)
Daily Total PM-10 Emissions = 8,263 pounds



Hidden Valley Emission Inventory

Figure ES-1
Hidden Valley Monitor Area PM-10 Emissions on March 17, 2016 (low wind day)
Daily Total PM-10 Emissions = 6,654 pounds



Contact Information

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